

CLAIMS

1. A docking apparatus for printed circuit boards comprising:

a cassette housing defining a housing cavity for containing a printed circuit board (PCB) and wherein said cassette housing further includes a PCB connector opening disposed so as to be communicated with said housing cavity; and

a linkage mechanism disposed so as to be associated with said cassette housing, said linkage mechanism includes:

a linkage arm pivotally connected to said cassette housing via a pivot, said linkage arm having a first arm pivotally connected to said PCB,

a clevis pivotally connected to said linkage arm via a second arm extending from said first arm, said clevis having an aperture therethrough,

a shaft extending through said aperture of said clevis at a first end defining said shaft, said first end configured to operably transfer axial translation of said shaft to said clevis, and an opposite second end defining said shaft includes a thread, and

a nut operably secured to said cassette housing, said nut configured to threadably receive said thread for axial translation of said shaft therethrough,

wherein rotation of said shaft translates said shaft causing pivotal movement of said linkage arm about said pivot via said clevis causing translation of said PCB in and out of engagement with a corresponding connector.

2. The docking apparatus according to claim 1, wherein said cassette housing includes a housing bezel disposed relative to said cassette housing defining a cable opening so as to be communicated with said housing cavity.

3. The docking apparatus according to claim 2, wherein cassette housing includes a housing base, a housing cover and a housing wall, wherein said housing base and said housing wall are disposed relative to each other so as to define said housing cavity for containing said printed circuit board (PCB).

4. The docking apparatus according to claim 2, wherein said nut is secured to at least one of said housing wall and said housing bezel and a portion of said shaft extends from cassette cavity for rotatable manipulation thereof.

5. The docking apparatus according to claim 1, wherein said thread includes a plurality of threads, each thread of said plurality of threads are disposed in a space defining a pitch of said each thread.

6. The docking apparatus according to claim 5, wherein said thread is a tri-lead thread configured to reduce the number of revolutions of said shaft to axial translate said shaft a selected distance.

7. The docking apparatus according to claim 6, wherein said each thread of said tri-lead thread is configured with four threads per inch offering increased mechanical advantage provided by the linkage arm alone and travel required thereof.

8. The docking apparatus according to claim 1, wherein said clevis is further defined with a pin extending therefrom, said pin is guidably received in a slot disposed in said cassette housing, said slot allows translation of said clevis generally in a same direction of said axial translation of said shaft.

9. The docking apparatus according to claim 8, wherein said slot is angularly disposed relative to said axial translation of said shaft providing over travel protection thereof

10. The docking apparatus according to claim 8, wherein said aperture of said clevis is elongated to allow pivotal movement of said first end of said shaft extending therethrough about an axis defining said pin.

11. The docking apparatus according to claim 10, wherein said clevis allows for three directions of movement simultaneously.

12. The docking apparatus according to claim 1, wherein said second link arm is about four times longer than said first link arm providing addition mechanical advantage over that of said thread and said nut.

13. The docking apparatus according to claim 1, wherein said first end configured to operably transfer axial translation of said shaft to said clevis includes a stepped shaft having a second threaded portion defining an end thereof to threadably receive a second nut thereon.

14. The docking apparatus according to claim 13, wherein said stepped shaft includes three contiguous steps defining said first end, said three contiguous steps further defined by an intermediate step of the three contiguous steps, said intermediate step disposed in said aperture of said clevis.

15. The docking apparatus according to claim 14, wherein said second end of said shaft includes a handle configured to at least one of manually rotate said shaft and accept a tool for rotation thereof.

16. A docking apparatus according to claim 1, wherein said cassette housing includes a mounting device for movably containing a printed circuit board.

17. A docking apparatus according to claim 1, wherein said cassette housing includes a protrusion for non-movably communicating said cassette housing with a computer system.

18. A docking apparatus according to claim 1, wherein said housing bezel and said cassette housing are non-movably associated using one of a screw and a clip.

19. A docking apparatus according to claim 1, wherein said linkage mechanism is disposed relative to said cassette housing so as to be partially disposed within said housing cavity.

20. A docking apparatus comprising:

a printed circuit board;

a cassette housing having a mounting device and defining a housing cavity for movably containing said printed circuit board, said mounting device is disposed within said housing cavity so as to slidably contain said printed circuit board within said housing cavity; and

a linkage mechanism disposed within said housing cavity so as to be communicated with said printed circuit board, said linkage mechanism includes:

a linkage arm pivotally connected to said cassette housing via a pivot, said linkage arm having a first arm pivotally connected to said PCB,

a clevis pivotally connected to said linkage arm via a second arm extending from said first arm, said clevis having an aperture therethrough,

a shaft extending through said aperture of said clevis at a first end defining said shaft, said first end operably coupled with said clevis, and an opposite second end defining said shaft including a thread, and

a nut operably secured to said cassette housing, said nut configured to threadably receive said thread for axial translation of said shaft therethrough,

wherein rotation of said shaft axially translates said shaft in a first direction causing pivotal movement of said linkage arm about said pivot via said clevis causing translation of said PCB in a second direction generally perpendicular to said first direction in and out of engagement with a corresponding connector.